REMARKS

Claims 1-22 are pending in this application.

Claims 1-22 have been rejected.

Claims 1, 3 and 4 have been amended as shown above.

Claim 2 has been cancelled.

Claim 1 and Claims 3-22, as amended, remain pending in this application.

Reconsideration of Claim 1 and Claims 3-22, as amended, is respectfully requested.

I. OBJECTIONS TO INFORMAL DRAWINGS

The March 27, 2006 Office Action objected to the informal drawings originally filed with the patent application. In response, the Applicant is submitting formal drawings with this Amendment in compliance with 37 C.F.R. § 1.121(d). Accordingly, the Applicant respectfully requests withdrawal of the objections to the drawings.

II. REJECTIONS UNDER 35 U.S.C. § 101

The March 27, 2006 Office Action rejected Claims 1-22 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claim 1 and Claims Dependent on Claim 1

The Applicant has amended Claim 1 to recite the step of responding to a search command when the longest prefix match comprises the overall longest prefix match. The step of responding to the search command provides a tangible output that has a real world value.

The method of the present invention as set forth in amended Claim 1 responds to a search command from the network processing unit 104 by using the overall longest prefix match to retrieve and send data to the network processing unit 104. This feature is clearly described in the specification.

> At step 326, the network packet search engine 102 responds to the search command received from the network processing unit 104, at which point the method comes to an end. According to one embodiment, the network packet search engine 102 actively responds to the network processing unit 104. For this embodiment, if the search command comprises a retrieval command, the network packet search engine 102 uses its longest prefix match to retrieve data from the corresponding external memory 110 and transmits that data to the network processing unit 104. (Specification, Page 22, Lines 6-15) (Emphasis added).

The network packet search engine 102 responds to the search command by using the longest prefix match to retrieve and send data. The ability to determine a longest prefix match is a necessary function for methods that route data through networks. Amended Claim 1 now recites a practical application that establishes a useful, concrete and tangible result. The Applicant respectfully submits that Claim 1, as amended, now claims statutory subject matter and is no longer objectionable under 35 U.S.C. § 101. In addition, the claims that are dependent on amended Claim 1 also claim statutory subject matter and are no longer objectionable under 35 U.S.C. § 101. The Applicant respectfully requests the withdrawal of the rejections of Claims 1-7 under 35 U.S.C. § 101.

Claim 8 and Claims Dependent on Claim 8

The Applicant herein incorporates by reference the remarks previously made

in connection with the discussion of amended Claim 1. The Applicant respectfully directs the Examiner's attention to the fact that Claim 8 contains the step of "responding to the search command based on the determination that the network packet search engine comprises the overall longest prefix match." As previously described, the network packet search engine 102 responds to the search command by using the longest prefix match to retrieve and send data. The Applicant respectfully submits that this step of Claim 8 shows that Claim 8 recites a practical application that establishes a useful, concrete and tangible result. The Applicant respectfully submits that Claim 8 claims statutory subject matter and is not objectionable under 35 U.S.C. § 101. In addition, the claims that are dependent on Claim 8 also claim statutory subject matter and are not objectionable under 35 U.S.C. § 101. The Applicant respectfully requests the withdrawal of the rejections of Claims 8-13 under 35 U.S.C. § 101.

Claim 14 and Claims Dependent on Claim 14

The Applicant herein incorporates by reference the remarks previously made in connection with the discussion of amended Claim 1. The Applicant respectfully directs the Examiner's attention to the fact that Claim 14 contains the step of "receiving a response to the search command" from one of the network packet search engines based on the determination that the network packet search engine comprises the overall longest prefix match. The receipt of data by the network packet search engine 102 in response to the search command where the data is derived by using an overall longest prefix match shows that Claim 14 recites a practical application that establishes a useful, concrete and

tangible result. The Applicant respectfully submits that Claim 14 claims statutory subject matter and is not objectionable under 35 U.S.C. § 101. In addition, the claims that are dependent on Claim 14 also claim statutory subject matter and are not objectionable under 35 U.S.C. § 101. The Applicant respectfully requests the withdrawal of the rejections of Claims 14-16 under 35 U.S.C. § 101.

Claim 17 and Claims Dependent on Claim 17

The Applicant herein incorporates by reference the remarks previously made in connection with the discussion of amended Claim 1. Claim 17 claims a network packet search engine coupled to at least one other network packet search engine. Because the claimed network packet search engines comprise an apparatus, Claim 17 is not directed to non-statutory subject matter under 35 U.S.C. § 101. In addition, the claims that are dependent on Claim 17 also claim statutory subject matter and are not objectionable under 35 U.S.C. § 101. The Applicant respectfully requests the withdrawal of the rejections of Claims 17-21 under 35 U.S.C. § 101.

Claim 22

The Applicant herein incorporates by reference the remarks previously made in connection with the discussion of amended Claim 1. Claim 22 claims a processing system that comprises a network processing unit and a plurality of network packet search engines. Because the claimed processing system comprises an apparatus, Claim 22 is not directed to non-statutory subject matter under 35 U.S.C. § 101. The Applicant respectfully requests the withdrawal of the rejections of Claim 22

under 35 U.S.C. § 101.

III. REJECTIONS UNDER 35 U.S.C. § 102

The March 27, 2006 Office Action rejected Claims 1-22 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,631,419 to Spencer Greene (hereafter "*Greene*") (March 27, 2006 Office Action, Page 4, Lines 1-2). The Applicant respectfully traverses these rejections.

It is axiomatic that a prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. MPEP § 2131. *See, In re King*, 231 USPQ 126, 138 (Fed. Cir. 1986) (citing with approval, *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984)); *In re Bond*, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. MPEP § 2131. *In re Donohue*, 766 F.2d 531, 534, 226 USPQ 619, 621 (Fed. Cir. 1985).

With respect to any of Claims 1-22, a determination of anticipation in accordance with Section 102 requires that each feature claimed therein be described in sufficient detail in *Greene* to enable one of ordinary skill in the art to make and practice the claimed invention.

The Applicant respectfully disagrees with the Examiner's assertions regarding the subject matter disclosed in the *Greene* reference. The Applicant respectfully submits that the *Greene* reference does not show each and every limitation of the Applicant's invention. The

Applicant directs the Examiner's attention to amended Claim 1, which contains unique and novel limitations:

> 1. (Currently Amended) A method for providing cascaded network packet search engines, comprising:
> receiving a search command at one of the network packet search engines, the search command comprising a specific search key;
> determining at the network packet search engine a longest prefix match based on the specific search key;
> determining at the network packet search engine whether the longest prefix match comprises an overall longest prefix match among the cascaded network packet search engines such that any of the cascaded network packet search engines may comprise the overall longest matching prefix independently of position relative to the other cascaded network packet search engines; and
> responding to the search command when the longest prefix match comprises the overall longest prefix match. (Emphasis added).

The present invention provides a method for operating a network processing unit 104 and a plurality of cascaded network packet search engines (102a, 102b, 102c, 102d). Each of the plurality of network packet search engines (NPSE 102) independently receives a copy of the search command and independently searches its own lookup table (designated prefix table 200). Each of the plurality of cascaded network packet search engines (102a, 102b, 102c, 102d) determines the longest prefix match that it can find in its own respective prefix table 200. Then the overall longest prefix match is determined from the plurality of the longest prefix matches that have been independently determined by each of the plurality of the network packet search engines (102a, 102b, 102c, 102d). That is, the Applicant's invention determines which of the plurality of longest prefix matches that are found by the plurality of network packet search engines (102a, 102b, 102c, 102d) is the overall longest prefix match. The Applicant's

invention responds to the search command when the longest prefix match is the overall longest prefix match.

The *Greene* reference does not disclose these features of the Applicant's invention. The *Greene* reference teaches only the use of a single search engine (designated lookup engine 106). Therefore, the *Greene* reference does not address the problem of matches that occur within multiple search engines.

The *Greene* lookup engine 106 divides a search key into three portions. In the disclosed embodiment a 32-bit search key is divided into a first 16-bit portion, a second 6-bit portion, and a third 10-bit portion. The single lookup engine 106 of Greene comprises three independent memory arrays (116, 118, 120). The first 16-bit portion of the search key is sent to the first memory array 116 where only prefixes less than or equal to 16-bits are considered. The output of the first memory array 116 is an output value when the prefix is less than or equal to 16 bits and a pointer value to the second array 118 when the prefix is greater than 16 bits.

The second 6-bit portion of the search key is sent to the second memory array 118 where only prefixes less than or equal to 22-bits are considered. The output of the second memory array 118 is an output value when the prefix is less than or equal to 22 bits and a pointer value to the third array 120 when the prefix is greater than 22 bits.

The third 10-bit portion of the search key is sent to the second memory array 120 where only prefixes greater than 22 bits are considered. The output of the second memory array 130 is an output value when the prefix is greater than 22 bits.

The Examiner stated that "With respect to Claim 1, Greene teaches a method for providing cascaded network packet search engines (column 4, lines 49-50)." (March 27, 2006 Office Action, Page 4, Lines 3-4). The Applicant respectfully traverses this assertion of the Examiner. The cited portion of the *Greene* reference states "According to a first embodiment, a lookup engine receives a search key . . . ." (*Greene*, Column 4, Lines 49-50) (Emphasis added). The cited portion of the *Greene* reference shows that *Greene* teaches only a single lookup engine (i.e., a lookup engine). *Greene* does not teach a plurality of network packet search engines. *Greene* does not teach a plurality of cascaded network packet search engines where each network packet search engine is coupled to an adjacent network packet search engine.

Figure 1 and Figure 2 of the Applicant's drawings (and accompanying text) show that the plurality of network packet search engines (102a, 102b, 102c, 102d) are capable of communicating with each other and capable of passing prefix values (see, e.g., longest match right output (LMRO) node 206, longest match left output (LMLO) node 208, longest match right input (LMRI) node 202, longest match left input (LMLI) node 204). The *Greene* reference does not teach this feature of the Applicant's invention.

The Examiner stated that the *Greene* reference teaches "receiving a search command at one of the network packet search engines, the search command comprising a specific search key (column 6, lines 50-53)." (March 27, 2006 Office Action, Page 4, Lines 5-6). The Applicant respectfully traverses this assertion of the Examiner. The *Greene* reference does not teach a plurality of network packet search engines. Therefore the *Greene* reference is not able to receive a search command at "one of the network packet search engines." The cited portions of the

Greene reference read "Most of the particular embodiments described can perform a lookup operation on a 32-bit input value, which may be an internet protocol (IP) designation address, and provide a corresponding 15-bit output value, which may be a output port (router interface) designator." (*Greene*, Column 5, Lines 50-53). The cited portion of the *Greene* reference does not describe the receipt of a search command at one of a plurality of network packet search engines.

The Examiner stated that the *Greene* reference teaches "determining at the network packet search engine whether the longest prefix match comprises an overall longest prefix match among the cascaded network packet search engines (column 4, lines 49-60)." (March 27, 2006 Office Action, Page 4, Lines 9-11). The Applicant respectfully traverses this assertion of the Examiner. The *Greene* reference does not teach a plurality of network packet search engines. Therefore, the *Greene* reference is not able to determine at a network packet search engine whether a longest prefix match comprises an overall longest prefix match among the cascaded network packet search engines. The cited portion of the *Greene* reference describes a summary of the *Greene* invention. The cited portion of the *Greene* reference does not describe the determination of an overall longest prefix match among a plurality of cascaded network packet search engines.

The Examiner also stated that the *Greene* reference teaches "that any of the cascaded network packet search engines may comprise the overall longest matching prefix independently of position relative to the other cascaded network packet search engines (column 7, lines 28-32 and column 4, lines 43-45)." (March 27, 2006 Office Action, Page 4, Lines 11-14). The

Applicant respectfully traverses this assertion of the Examiner. The *Greene* reference does not teach a plurality of network packet search engines. Therefore the *Greene* reference does not teach that any of the cascaded network packet search engines may comprise the overall longest matching prefix independently of position relative to other cascaded network packet search engines.

For the reasons set forth above, the Applicant respectfully submits that the *Greene* reference does not disclose all of the elements of the Applicant's invention. The Applicant respectfully requests that the rejection of Claim 1, as amended, under 35 U.S.C. § 102(e) be withdrawn. Because the claims that are dependent on Claim 1, as amended, also contain the unique and novel features of Claim 1, and because the Greene reference does not teach all of the features of Claim 1, the claims that are dependent on Claim 1 are also not anticipated by the *Greene* reference. The Applicant respectfully requests that the rejection of Claims 3-7 under 35 U.S.C. § 102(e) be withdrawn.

The Examiner also rejected Claims 8-13, Claims 14-16, Claims 17-21 and Claim 22 on the basis of the analysis that the Examiner set forth for Claims 1-7. (March 27, 2006 Office Action, Page 6, Lines 4-5). With respect to the rejection of Claims 8-22, the Applicant incorporates by reference all of the arguments and comments made in conjunction the Applicant's traversal of the rejections of Claims 1-7. For the reasons previously set forth, the Applicant respectfully submits that the *Greene* reference does not anticipate Claims 8-22. Therefore, the Applicant respectfully requests that the rejection of Claims 8-22 under 35 U.S.C. § 102(e) be withdrawn.

IV. CONCLUSION

The Applicant respectfully asserts that all pending claims in this application are in condition for allowance and respectfully requests allowance of the claims.

SUMMARY

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@munckbutrus.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication (including any extension of time fees) or credit any overpayment to Munck Butrus Deposit Account No. 50-0208.

Respectfully submitted,

MUNCK BUTRUS, P.C.

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William A. Munck
Registration No. 39,308

Docket Clerk
P.O. Box 802432
Dallas, Texas 75380
Tel: (972) 628-3600
Fax: (972) 628-3616
Email: *wmunck@munckbutrus.com*